Trail of Black Holes

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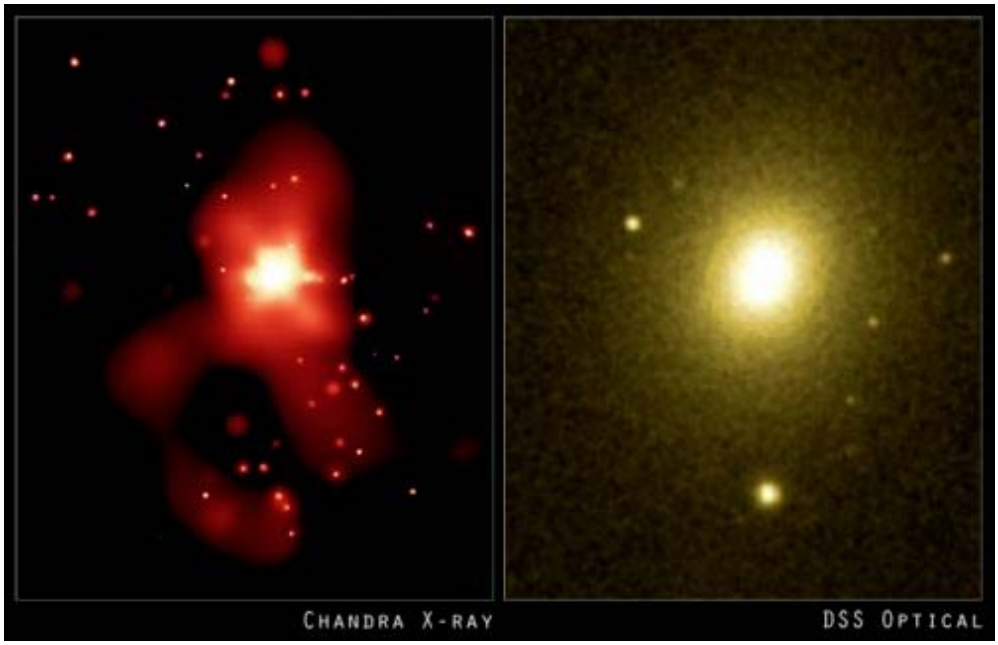

Trail of Black Holes

Like some cosmic Hansel and Gretel, two galaxies have left a trail of black holes that astronomers are using to trace the path of history.

A new image from NASA's Chandra X-ray Observatory, released yesterday, shows the X-ray emissions from a string of black holes and neutron stars (upper left). Astronomers think the trail is an unfolding story of an old galactic merger. Visible-light images (upper right) do not show the exotic objects.

There is one galaxy at the scene now. It is called NGC 4261. It is an elliptical galaxy, and theorists think these form when two spiral galaxies collide. The X-ray point sources could be a clue that this is true. Each represents a black hole or neutron star that sucks gas from a companion star, then accelerates the gas, making it glow in X-rays. (Other black holes could be there but, if living alone, might not glow similarly.)

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There must be a reason for all these black holes and neutron stars to be "strung out across tens of thousands of light years like beads on a necklace," as the Chandra researchers put it. They figure that during the merger, a smaller galaxy was captured and ripped apart. Streams of gas were pulled into long tails. Shock waves triggered the formation of massive stars.

Over a few million years, massive stars would explode and collapse into black holes or neutron stars. Our own Milky Way is destined to collide in a few billion years with the Andromeda Galaxy. Both giant galaxies are spirals.

Credit: X-ray: NASA/CXC/A. Zezas et al.; Optical: Pal.Obs. DS

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